REMARKS

Claims 1-16, 18-48, 50-53, 55, 56 are presented for prosecution. Claims 55 and 56 are amended. Claim 54 is currently canceled. Claims 17 and 49 were previously canceled.

Claims 6-16, 19-32, 38-48 and 51-53 are allowed. Applicants thank the Examiner for allowance of these claims.

Claim 55 is rewritten in independent form.

Claim 56 is amended to more clearly state claim limitations.

In regards to claims 1 and 33, the Office Action notes that Applicants previously argued that the Benati reference does not show that red-eye correction includes adjusting the brightness intensity of red-eye pixels and bordering pixels (i.e. pixels that border the red-eye pixels) such that the red-eye pixels are given a brightness intensity lower than that given bordering pixels. As it is known in the art, red-eye results in very bright red pixels surrounded by dark bordering pixels. Applicants had argued that the prior art teaches reducing the brightness of the red-eye pixels so that they are not so intense, but they are nonetheless maintained brighter than bordering pixels. The Office Action also noted that Applicants previously pointed to column 8, line 62-column 9, line 13 of the Benati reference in support of this assertion.

The Office Action explained, however, that the Office action's interpretation of the cited excerpt does not support the Applicants assertion. Firstly, the Office Action states that,

> "Benati discloses that, 'the luminance channel is multiplied by a factor of 0.35 in order to reduce the lightness of the pixel's neutral value.' This is in reference to the actual red eye pixels, which are decreased in brightness by a factor of 0.35 giving them an effective comparative brightness value of 0.65".

Applicants are at loss to understand this statement. If Benati states that the luminance is ***multiplied*** by a factor of 0.35, then the luminance is reduced to an effective brightness of 0.35 times that of its original value. That is, the effective comparative brightness value is 0.35 (i.e. the luminance channel is reduced by 65%).

The Office Action then goes on to state that,

> "Benati then states (column 9, lines 9-12) that the border pixels surrounding the red eye pixels are 'only darkened by a 0.15 factor.' This would give the bordering pixels an effective comparative brightness value of 0.85 which is effectively brighter than the first brightness intensity.

Applicants again were at a loss to interpret the meaning of this statement since if an original value is reduced by a factor of 0.15, this means that the original value is *multiplied* by 0.15. Since Benati explains that redeye pixels are brighter than bordering pixels, and further explains that the luminance of redeye pixels is multiplied by 0.35 while the luminance of darker bordering pixels is multiplied by 0.15, it is clear that the redeye pixels remain much brighter than the bordering pixels.

Applicants contacted the Examiner by telephone to attempt to clarify this apparent misunderstanding. The examiner explained that although Benati states that the luminance of redeye and bordering pixels are reduced by factors of 0.35 and 0.15, respectively, the Examiner chose to interpret the Benati reference as instead teaching that the luminance was reduced by 35% and 15%, respectively. In the telephone interview, applicants first pointed out that the term factor, as it is known in the art, means a multiple and does not means a percentage reduction. Applicants then pointed out that Benati himself explains that reducing the luminance of redeye pixels by a factor of 0.35 means that the luminance is *multiplied* by 0.35, and not reduced by 35%. The Examiner conceded that Benati did indeed show multiplying the luminance of red-eye pixels by 0.35, but since Benati had included the word "only" in his statement of reducing the luminance of bordering pixels by a factor of 0.15, the Examiner (at least as applied to boarding pixels) would continue to interpret the word "factor" as meaning "a percentage", rather than meaning a multiple.

Applicants intend to show that such an interpretation is contrary to the ordinary meaning of the word factor, and is not supported by the Benati reference. Firstly, however, Applicants respectfully point out that since red-eye pixels are much, much brighter than the dark bordering pixels that surround it, even if one were to accept the Examiner's interpretation of the word "factor",

which would result in bordering pixels being darkened less than red-eye pixels, the bordering pixels would still remain darker than the red-eye pixels since they had a much darker initial value.

Returning now to the accepted meaning of the word "factor", "The Dictionary of Science and Technology", by Academic Press, Copyright 1992 defines the term "factor" as:

> **factor** ... *Mathematic.* an object or quantity *a* is said to be a factor of an object or quantity *c* if there exists another object or quantity *b* such that $ab = c$ (within some mathematical system such as a group); equivalently, *a* is any divisor of *c*. Expressing a given object or quantity *c* and the for form $c = ab$ is known as factoring.

The same "Dictionary of Science and Technology" defines the term scale factor as:

> **scale factor**: *Engineering.* a factor used to multiply the reading of an instrument to give the true final value.

The term scale factor is defined here because Benati uses the term "factor" several times in his patent, and provides several examples of the use of the term factor when discussing scaling a value up or down. Specifically referring to Benati Col. 7, lines 34 61, wherein he states,

> "The process of fixing an image at a higher resolution entails the formation of a scaled up version of the classmap bit map. The first step of the process is to pass the scaled version of the original image ...to the Identification of Eye Color Defect Candidate Pixels stage 210. This stage returns a scaledColor bit map. Next, each segment contained within the classmap bit map is examined. As each segment is encountered its best pixel's coordinates are scaled up by the appropriate x-/y-<u>scale factors</u>. In theory these coordinates will be at most.+-.the x-/y-scale factor number of coordinates away from the original coordinates **<u>multiplied</u>** <u>by their scale factor value</u>, respectively. ... FIG. 9 depicts the bit located at (4, 2) in the classmap has been designated as the best pixel (see Segmentation 220). When these coordinates are **<u>multiplied</u>** <u>by the respective scale factors</u> (two for both coordinates in this example), the resulting bit is located at (8, 4)--designated in FIG. 9 by a 'X'. "

Another location where Benati shows that the term factor means multiplication, not percentage, is in col. 8, lines 19-21, where it states,

> "For every N X M (where N equals the x-scale factor and M equals the y-scale factor)..."

Thus, given that the term factor is understood in the art to mean a multiplier, and Benati provides several examples of factors as multipliers, Applicant respectfully put forth that it is improper for the Office Action to selectively assign a meaning of "percentage reduction" to the word "factor" in an effort to construct the present invention. Therefore, Applicants contend that claims 1 and 33 are not taught or suggested by the cited prior art, singularly or in combination. Furthermore, claims 2-5 and 18, which depend from claim 1 are believed allowable based at least on the allowability of their base claim 1. Similarly, claims 34-37 and 50 are likewise believed allowable based at least on the allowability of their base claim 33.

In regards to claim 55, the Office Action states that Sakamoto discloses "wherein the search for said second red eye region includes using a measure of a characteristic parameter of the identified first red eye region as a reference parameter to locate said second red eye region (column 3, line 20-30). The color information from the first red-eye area is used to search for the second red-eye region". Applicants respectfully disagree, and have rewritten claim 55 in independent form including all the limitations of its base claim 54, now cancelled.

The Office Action cites only part of the summary of Sakamoto's invention. A more complete excerpt of Sakamoto's summary explains that the locating of two red-eye regions is a two step process. Firstly, a user selects a rectangular region that may include one or two red-eye regions. Sakamoto's application assumes that if two eyes are included in the selected rectangular region, then each eye will be at either end of the selected rectangular region.

Thus, Sakamoto's application begins by first searching for the reddest pixel in the entire image (not restricted to the selected rectangular region). Upon identifying the reddest pixel, Sakamoto's application then compares the location of the identified pixel with the user-submitted rectangular region. If the

identified pixel is not located within the rectangular region then it assumes that no red eye regions were found. If the identified reddest pixel is located within the submitted rectangular region, then the application determines if the identified reddest pixel is located close to a side-edge of the rectangular region. If it is not, then it assumes that the image has only one red-eye region and no search of a second red-eye region is made. However, if the reddest pixel is located close to the side-edge (for example, close to the left inside edge of the user-submitted rectangle region), then the side of the submitted rectangular region where the identified reddest pixel is located is removed (i.e. in the present example, only the right side of the rectangular region remains).

Here, Sakamoto's application assumes that since a person has two eye, if the red-eye region of the left eye has been located then one only needs to seek for the red-eye region of the right eye at the opposite side of the submitted rectangular region. At this point, the previously identified reddest pixel is discarded, and the process repeats itself anew. That is, the application identifies the reddest pixel within the remaining right-side of the submitted rectangular region, and identifies it as the second red-eye region.

As it can be seen from the above, neither the color nor any other characteristic parameter measure of the identified first red eye region is used to identify the second red-eye region. Rather, a first search pass uses a large rectangle, and identifies the reddest pixel within the large rectangle. Once this is done, the size of the rectangle is reduced to exclude the previously identified pixel. A second search pass for the reddest pixel in the remaining smaller rectangle is then executed. Thus, no characteristic parameter measure of the first red-eye region is used as a reference to identify the second red-eye region. In both search passes, Sakamoto merely identifies the reddest pixel in a rectangular area. This is more clearly stated in the following Sakamoto excerpts:

Col. 4, lines 6-50, wherein it states,

> FIG. 1 shows the arrangement of a red-eye detection/retouch apparatus according to the first embodiment of the present invention. Referring to FIG. 1, an input image signal 1 including a red eye ... and an area designation signal S ... representing a small area including

> the red eye and designated by the user are input to an eye area extraction unit 41. The area including the red eye is extracted and output as an eye area image signal 6. The area designation signal 5 represents a rectangular area .... The eye area image signal 6 is input to a first reddest pixel selection unit 43 to detect the reddest pixel. The coordinate values and color information of the detected pixel are output as a first red-eye position and color signal 8.
>
> The area designation signal 5 and the first red-eye position and color signal 8 are input to a red-eye position determination unit 44...If the red eye is detected at the edge of the area, it is determined that the other red eye is present on the opposite side. An area extraction driving signal 9 is output as an instruction signal for extracting the area where the other red eye is present. ....
>
> Upon receiving the eye area image signal 6, a red-eye nondetection area extraction unit 46 extracts the area [excluding the area where the first red-eye was found and] where the other red eye exists ...and outputs the [extracted] area as a nondetection area image signal 11. Upon receiving the [extracted] nondetection area image signal 11, a second reddest pixel selection unit 47 detects the reddest pixel and outputs the coordinate values and color information of the detected pixel as a second red-eye position and color signal 12.

As seen from the above, Sakamoto teaches identifying the reddest pixel in an image as a first red-eye region, dividing the image to exclude the area where the first red-eye was found. If the first red-eye image was found close to the left or right side-edge of the image, then the reddest pixel in the remaining, divided image is identified as a second red-eye region. The identifying of the second red-eye region merely includes identifying the reddest pixel among the remaining pixels, and does not make any reference to the characteristic color parameters of the first red-eye region.

This Response After Final Rejection is believed clearly to place this application in condition for allowance and its entry is therefore believed proper under 37 C.F.R. §1.116. Accordingly, entry of this Response After Final Rejection, as an earnest attempt to advance prosecution and reduce the number of issues, is respectfully requested. Should the Examiner believe that issues remain outstanding, he/she is respectfully requested to contact applicants' undersigned attorney in an effort to resolve such issues and advance the case to issue.

Respectfully submitted,

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